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Establishing An Environmental Sustainability Program At The University of Bridgeport

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Abstract

This research paper focuses on examining current most critical environmental problems such as paper waste, electricity and water consumption at the School of Engineering, University of Bridgeport. The objective of this study is “Creating Sustainable Growth” as a part of the greener world. The project also aims at increasing recycling activities as well as promoting sustainability within the campus. Furthermore, a set of suggestions along with research papers is also provided by means of a series of continuous improvement techniques.

1. Introduction

In today’s globalized world, managing energy and material consumption effectively and efficiently is the most critical competitive power in all businesses. It is hard to imagine today an organization that does not use developed approaches, studies, techniques, and systems in order to decrease total material consumption in its everyday production. The United States is also taking an active step to promote sustainability and endorse green practices in households as well in the workplace.

Life on campus consists of paper , electricity, and water usage - from tissues to cardboards, and from notepads to exam books. As the student population increases, consumption at the University is also expected to grow unless we take steps to reduce such usage. Therefore, we need to realize the impact upon the environment and accept changes in our ways of living to reduce the increasing trend of paper, electricity and water consumption. The recent statistics shows that the United States uses 25-30% of the world’s paper products and 18% of the total world electricity**.** It is also the largest energy and water consumer in terms of total use. Observing recycling procedures and reducing paper waste and electric practice at the University of Bridgeport can help keeping the environment clean, user-friendly, and saving money .

2. Sustainability

Sustainability regards gathering the needs of the present without compromising the ability of future generations to meet their own necessities. (Burnett, 2007)

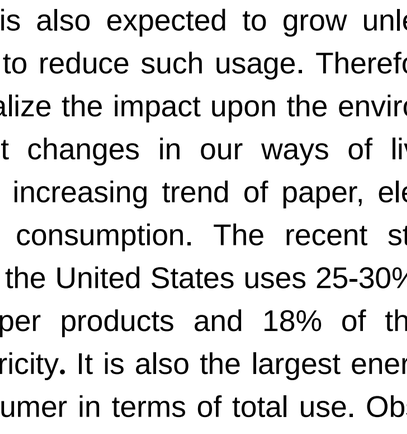


Figure 1. Concept of Sustainability in the Construction Sector (Jose, Losada, Cuadrado and Garrucho, 2007)

Environmental protection and economic development are essential to achieve sustainable development (WCED, 1987). In recent years, there have been advances in favor of environmental-friendly buildings. It could be said that there is a lack of sustainable aspects in the construction field of buildings.

An ideal sustainable building should have five major features - integration with local ecosystems, closed loop material systems, maximum use of passive design and renewable energy, optimized building hydrologic cycles, and full implementation of indoor environmental quality measures (Kilbert, Grosskopf, 2005).

	Green Buildings	Transportation	Sustainable Activities	Curriculum and Center for Sustainability
University of Connecticut	- Projects must meet at least LEED Silver standards - Burton Football Complex and Shenkman Training Center (LEED Silver certified)	- Shuttle buses run on bio-diesel fuel made on campus from waste cooking oil -Also it has a rideshare service	- Office of Environmental Policy (OEP) overseas sustainable activities - A 25-megawatt, natural gas-fired facility is the primary source of electricity, heating, and cooling on campus - They purchase only Energy Star-rated appliances - Beverages purchased in a reusable bottle are discounted	- Office of Environmental Policy (OEP) employs five or six student interns each semester - School has courses on Environmental Sustainability, and Energy and Sustainability
Yale University	- Yale currently has one each of LEED Silver, Gold, and Platinum certified buildings - School is considering using LEED design and certification for 13 more buildings	- Campus vehicle fleet includes seven hybrid and five electric vehicles - Offers a free shuttle service, and brought a commercial car-sharing program to campus in 2007	- A 250 kilowatt high-efficiency fuel cell supplies more than 25 percent of the electricity needs - Dining services uses recyclable or biodegradable take-out containers - University has a comprehensive desk-side recycling program and e-waste collection	- Employs more than 25 students to act as sustainability educators and coordinators in the residential system - Chemical & Environmental Engineering department
Connecticut College	- Currently pursuing certification for the new field house and renovation of Bill Hall	- A student-run collective repairs and leases bicycles - Car sharing program is introduced - First-year students are asked to refrain from bringing cars to campus	- College has a renewable energy policy - Dining halls use reusable dishware - Recycling procedure - Four active student groups involved in sustainability issues	- Provides a summer sustainability internship
Fairfield University	- Features energy-saving up-lighting and an under-floor air system - The new Community Center will feature a geothermal heating and cooling system	- Director of maintenance and the university fire marshal both drive hybrid vehicles - Bike rental/purchase option for students	- The heat and power plant will produce as much as 85 percent of the university's heating and cooling requirements - Discount is given on beverages purchased with a reusable mug	- School has a course on Sustainable Development
Trinity College	- New buildings are constructed to LEED Silver standards	- Bike sharing program	- School purchases Energy Star rated appliances - Students run a light bulb exchange program to raise awareness campus	- Students can apply for a sustainability mini-grant to pursue additional projects on sustainability
Wesleyan University	- Has one LEED certified residence hall and two other green buildings - Is currently designing a new building to LEED Gold standards	- Four electric vehicles for campus operations - State rideshare program	- University's athletic center runs on 100 percent renewable energy - Campus uses biodegradable and recyclable to-go containers	- The physical plant department hires several interns for sustainability-related project - College of Environment

Figure 2. Sustainability Efforts in Connecticut Universities

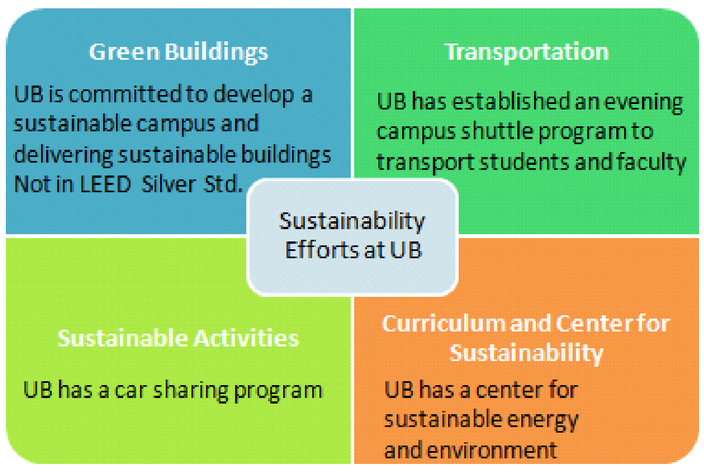


Figure 3. Sustainability Efforts at University of Bridgeport

3. Guidelines for Energy Management

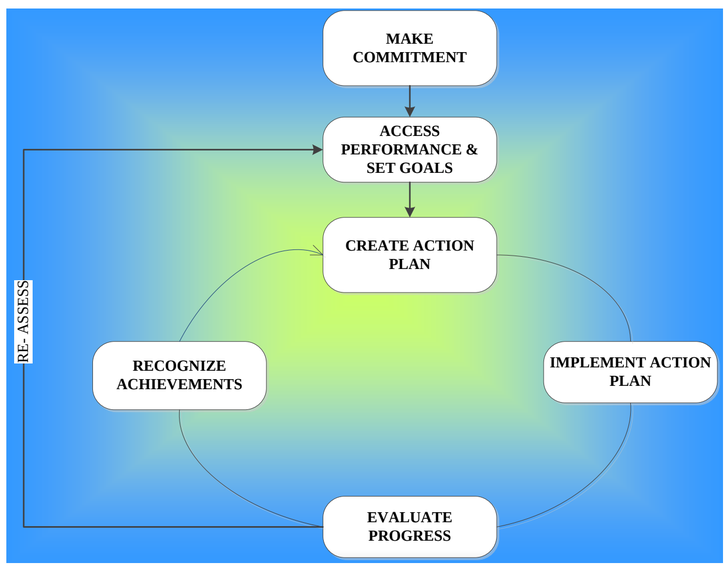
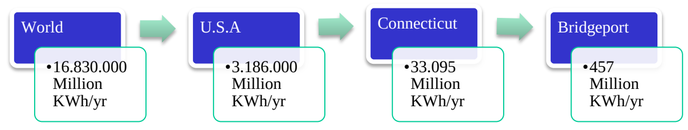


Figure 4. Energy Management Overview (EPA, Kilbert)

4. Current Utilization and Results

1. Electricity Consumption



2. Paper Consumption

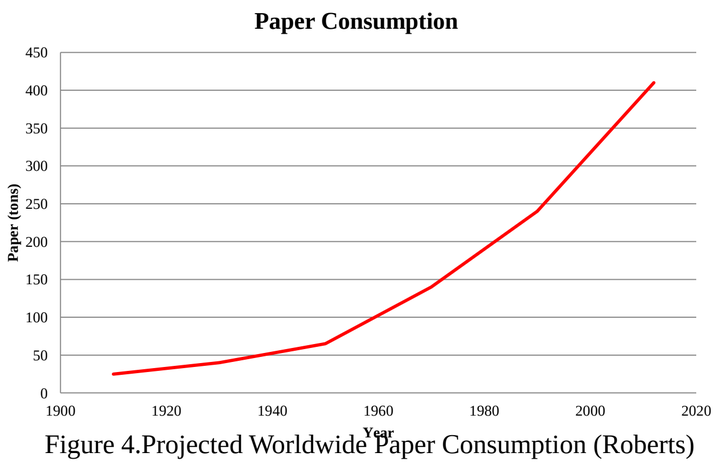
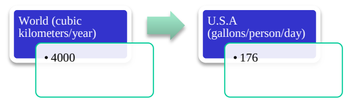


Figure 4.Projected Worldwide Paper Consumption (Roberts)

3. Water Consumption



The technology building consists of two floors, for a total of 27 faculty offices, 6 computer labs, a lecture hall, and 4 rest- rooms. On average, 351 people in the Technology building use about 263 papers per day. There are only 4 recycling bins are in the Technology edifice. 90% of lights are on during the timeframe of a week. 178 lights were ON during nighttime in the Technology building .

5. Conclusions

As a part of the sustainability efforts at the University of Bridgeport, we propose implementing a system that is convenient and efficient for its users. In this regard, it is recommended that recycle bins be placed in each classroom, office, copier room, as well as in common areas. Also, recycling screen saver with few tips on how to reduce, reuse, and recycle should be placed on all computers to educate people. Installing motion and water sensors, auto shutdown software, solar panel all over the campus is ultimately the best way of reducing electric consumption when not in use. Using renewable energy sources helps University of Bridgeport to decrease electricity consumption. The three R’s which are “*reduce, reuse and recycle*” the main steps to help make a greener and better University of Bridgeport.

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